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REMARKS/ARGUMENTS

Claims 1-37 are pending, but claims 9-37 have been withdrawn, so only claims 1-8 are being examined. All of claims 1-8 have been rejected. In this Reply, Applicants are cancelling claims 9-37, amending claims 1-8, and adding claims 38-41. Since the total number of claims is still less than twenty, with fewer than three independent claims, Applicants do not believe that the addition of the new claims requires the payment of any additional fees.

Applicant's Election

Since Applicants have elected to prosecute claims 1-8 without traverse, Applicants have cancelled the non-elected claims. Applicants reserve the right to pursue the cancelled claims in future continuation or divisional applications.

Abstract

The abstract has been edited so that it contains fewer than 150 words.

Information Disclosure Statement

Applicants gratefully acknowledge the Examiner's consideration of the Information Disclosure statement filed on 11/23/2004.

Claim Rejections under 35 U.S.C. § 101

Claims 1-8 have been rejected under 35 U.S.C. § 101 because those claims are allegedly drawn to non-statutory subject matter. In the pending Office Action, the Examiner points out that the *Guidelines for Patent Eligible Subject Matter* (1300 OG 142, Annex IV) state that in order for a claimed process to be statutory it must either: "(A) result in a physical transformation for which a practical application is either disclosed in the specification or would have been known to a skilled artisan, or (B) be limited to a practical application which produces a useful, tangible, and concrete result." The Examiner then argued that the processes in claims 1-8 fail to produce either a physical transformation or a practical application.

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The pending claims have been amended to ensure that they provide a "practical application." Applicants believe that the claim amendments are consistent with the subject matter in elected Group I, and that the amendments are fully supported by the specification. The first change to claim 1, the addition of the step of "providing a full-rank database of interactions," finds support throughout the specification. For example, such a database is described in the section of the specification entitled "RSMDB Content Databases", which begins near the bottom of pg. 13 and runs through the first paragraph of pg. 16. As stated on the top of pg. 14, the database must be "full-rank", which means that the database must contain both positive and negative data. In other words, the database must record both the presence and absence of interactions between molecular targets and compounds. See, e.g. Application pg. 15 lines 20-23, pg. 23 lines 1-15. The "descriptors" mentioned in the step of "providing a full-rank database" are described, for example, in the "Cheminformatic / Bioinformatic Annotations and Descriptors" section of the specification, which begins on pg. 15 line 24. The next step of "selecting two or more molecular targets" is described, among other places, in the paragraph that starts on pg. 17 line 21. The next major amendment to claim 1, the addition of the step of "analyzing the database" is discussed in the "Data Mining Tools and Predictive Algorithms" section of the specification, which begins on pg. 16 line 8. The other amendments to claim 1, the steps of "selecting a plurality of candidate compounds", representing those compounds in terms of the descriptors, and identifying the compounds with the desired set of compound descriptors, are supported, for example, in the "In Silico Screening Approaches for Drug Discovery" section of the specification, which begins on pg. 17 line 1 of the Application. In the second independent claim, claim 5, the "providing" and "analyzing" steps are supported by the sections of the specification cited for support of the "providing" and "analyzing" steps in claim 1. The final two steps in claim 5 are also described in the "In Silico Screening Approaches for Drug Discovery" section of the specification, which begins on pg. 17 line 1 of the Application. The amendments to dependent claims 2, 6, and 7 essentially just rephrased those claims to be consistent with the amendments made to independent claims 1 and 5. The references to "reverse partitioning" in claims 3 and 41 find support, for example, on pg. 16 lines 11-14 of the Application. The references to "2-D bond length descriptors" in claims 4 and 40 find support, for example, on pg. 20 lines 3-6 of the Application. The subject matter in claims 8, 38, and 39 was present in the original version of claim 5.

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Applicants assert that all of the claims, after being amended, describe processes that produce a practical application. All of claims 1-4 now describe, in detail, processes that select a smaller subset of compounds from the original "plurality of candidate compounds" that can be expected to have desired activities at two or more molecular targets. See e.g. Application pg. 7 lines 11-15. Thus those claims no longer recite a use without any active, positive steps delimiting how the use is actually practiced. The benefits of isolating a smaller set of promising compounds from a large set of drug candidate compounds are discussed extensively throughout the specification. See, e.g. Application pg. 5 line 3 – pg. 6 line 2, pg. 13 lines 5-10, pg. 17 lines 12-21. Claims 5-8 and 38-41 now describe processes that predict the potential side effects of a drug candidate early in the drug discovery process. The benefits of the early identification of side effect are also discussed extensively throughout the specification. See, e.g. Application pg. 3 lines 13-20, pg. 5 line 17 – pg. 6 line 12, pg. 17 line 25 – pg. 18 line 3. In summary, all of the pending claims should now describe processes that are patentable subject matter under § 101.

Claim Rejections under 35 U.S.C. § 112, second paragraph

Claims 1-8 have been rejected under the second paragraph of 35 U.S.C. § 112 because those claims are allegedly indefinite for failing to particularly point out and distinctly claim the subject matter that the Applicants regard as their invention. In the pending Office Action, the Examiner pointed to a number of specific limitations in the original claims that allegedly required clarification. The amendments to the claims have modified each of the offending limitations. More specifically, claims 1 and 5 no longer simply refer to "using one or more databases." The amended versions of those claims recite the steps that are intended to be encompassed by the claimed processes. Amended claims 2 and 6 no longer contain the phrase "identifying additional applications," and instead simply state that the drug compounds referred to in the independent claims are "known compounds." See, e.g. Application pg. 29 lines 3 – 18. Claims 4, 8, 5, and 7 have been almost completely rewritten, so the offending phrases have been removed from those claims.

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Appl. No. 10/669,705
Hao Chen et al.
Reply to Office Action of July 6, 2006

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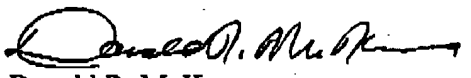
Claim Rejections under 35 U.S.C. § 102

Claims 1-8 have been rejected under 35 U.S.C. § 102(b) because those claims are allegedly anticipated by the "Lawrence" reference (Proteins: Structure, Function, and Genetics, 1992, 12 pg. 31-41). Applicants respectfully traverse this rejection because Lawrence fails to teach all of the limitations of the claims as required by MPEP § 2131. For example, it does not appear that Lawrence discloses "a full-rank [i.e. both positive and negative interactions] database of interactions between a plurality of molecular targets and a plurality of compounds", or the concept of using such a database to monitor the activity of a compound at "two or more molecular targets." Accordingly, Applicants believe that Lawrence fails to anticipate any of the pending claims.

Conclusion

For the foregoing reasons, Applicant believes all the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned attorney.

Respectfully submitted,



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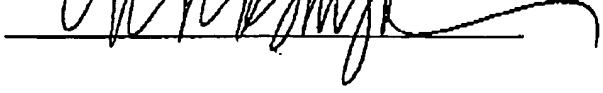
I, Will Sayo, hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service as First Class Mail in an envelope addressed to: M/S Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on January 8, 2007.

Signed: 

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